

Part II

General Analytic Techniques

Part II of the book discusses algorithms for evaluating separable queueing network models. To *evaluate* a queueing network model is to obtain outputs such as utilizations, residence times, queue lengths, and throughputs, from inputs such as workload intensities and service demands.

In Chapter 5 we show how to obtain bounds on performance, using extremely straightforward reasoning and simple computations that can be performed by hand.

In Chapters 6 and 7 we present more sophisticated algorithms that yield specific performance measures, rather than bounds. Chapter 6 is devoted to models with one job class. Chapter 7 extends this discussion to models with multiple job classes.

In Chapter 8 we introduce *flow equivalent service centers*, which can be used to represent the behavior of entire subsystems. Such *hierarchical modelling* is one important way to extend separable queueing network models to represent system characteristics that violate the assumptions required for separability — characteristics such as those listed at the end of Chapter 4. Chapter 8 thus forms a bridge to Part III of the book.